

stratification and mixing associated with salinity and temperature and bottom water hypoxia.

On a temporal scale, mean temperature values and dissolved oxygen concentrations did not show any major differences between years.

*pH.* Surface pH values in the mainstem Neuse River ranged from 5.9 s.u. at upper station 02091836 (Streets Ferry) to 9.3 s.u. at lower Neuse River station, NEU131X. The tributaries, many of which drain swamplands, exhibited much lower pH values. The West Prong of Brice Creek (0209257120) for example contained a minimum pH value of 3.2 s.u. The mean pH at this station is 4.3 s.u., probably due to natural causes as this station is located in the Croatan National Forest and there are no dischargers into the creek. Values of pH were elevated in the lower Neuse River because of increased algal activity. Figure N1 illustrates this range of pH values with highest mean pH values occurring in the Neuse River proper, particularly at downstream stations where algal growth was highest. Table N 1 represents data from the Neuse River with the number of pH values greater than or equal to 8.5 s.u., corresponding mean chlorophyll-a values, the number of chlorophyll-a concentrations greater than or equal to 20 µg/l, and the number of D.O. observations with greater than 110 percent saturation.

TABLE N 1. Values of pH exceeding 8.5 s.u. with associated chlorophyll-a concentrations and percent saturation, Neuse River Basin

LOCATION	N	pH ≥ 8.5 ( ) = % of N	CHLA ≥ 20 ( ) = % of pH	Mean Chla - µg/l ( ) = # samples	%SAT ≥ 110% ( ) = % of %SAT
Neuse R. @ New Bern	37	1 (3)	1 (100)	57 (1)	1 (100)
Neuse R. @ Fairfield Harbor	21	2 (10)	2 (100)	52 (2)	2 (100)
Neuse R. near Thurmon	34	4 (12)	4 (100)	55 (4)	1 (25)
Neuse R. near Riverdale	20	7 (35)	4 (57)	77 (7)	6 (86)
Neuse R. near Minnesott Bch.	19	12 (63)	9 (75)	42 (12)	10 (83)
Neuse R. near Oriental	33	5 (14)	2 (40)	20 (5)	2 (40)
Neuse R. near mo. of Pamlico	33	5 (15)	1 (20)	13 (5)	2 (40)

*Conductivity and Salinity.* Conductivity values ranged from 37 to 314 umhos at freshwater stations and peaked at 34,220 umhos at the most saline station, Neuse River near Pamlico (02092682). Lowest mean conductivities were found at the tributary station, Contentnea Creek near Lucama. Several high conductivity values were recorded on August 25, 1988 at stations which are normally freshwater. These high conductivities occurring at